Prepared By
Ray A. Vidal
Aviation Planning
Consultant

COMPREHENSIVE LAND USE PLAN

CHINO AIRPORT

November 1991
San Bernardino County
Airport Land Use Commission

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(916) 823-2273

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INTRODUCTION AND BACKGROUND

This Airport Comprehensive Land Use Plan (ACLUP) was prepared pursuant to Chapter 4, Article 3.5 of the California Public Utilities Code**. The plan was prepared by airport planning consultant, Ray A. Vidal, in conjunction with, and assistance from, staff of the San Bernardino County Airport Land Use Commission (ALUC), the City of Chino – Community Development Department.

The unique elements associated with aviation and airports, dictates that special considerations be given to planning the peaceful and safe coexistence of airports and their surrounding communities. Consequently, the California State Legislature enacted airport land use planning laws which are intended to:

- provide for the orderly development of each public use airport in the State and the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards adopted pursuant to Section 21669 and to prevent the creation of new noise and safety problems.

- protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

The general mechanism that the statutes provided for compliance with the airport planning laws, is for counties to establish an ALUC. In turn, the commission shall adopt a Comprehensive Land Use Plan (CLUP) that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission.

The initial object of this ACLUP is to effectively identify areas, located outside of the airport proper, that would be influenced by the future operations of the airport. Planning boundaries are established on the perimeters of these areas, which are plotted, by applying the specific operational criteria of the airport, to various planning models that have been primarily developed by the FAA.

** Appendix "A", Section 21670 et seq. State Aeronautics Act, Public Utilities Code (Chapter 4, Article 3.5)

The planning boundaries and some specific calculations etc. found within this plan have been compiled from a variety of Federal, State and local guidelines, specifically for the operations of the Chino Airport. They are not necessarily applicable to, nor compatible with, any other airport.

In an effort to simplify and consolidate the various findings and recommendations unique to the area surrounding the Chino Airport, this ACLUP has established three general referral areas, within the section titles "Summary of Findings and Policies." Note that, land use compatibility is determined by comparing proposed land uses against each of the safety, height and noise guidelines and/or criteria. Any proposed land use must by compatible with all.

The Noise and Safety Impact sections of this ACLUP contain information that is intended to provide the reader with a general understanding of the specific effects of each impact, the size of, and how the boundaries of each impact area are plotted and just what mitigation alternatives are available.

The text of this plan may in many cases contain only a brief description of a particular action or regulation. It is necessary, when using this plan, to thoroughly review the appendix and other reference material, in conjunction with the "Summary of Findings and Recommendation," before making any planning decisions.

This plan is based upon a consolidation of airport generated impacts emanating from an analysis of present day operations at the airport, plus the airports 20 year projections as contained with the 1986 Airport Master Plan prepared by consultants A.J. Parry & Associates Inc. and Aries Consultants Ltd.

Certain impact areas plotted in this ACLUP project beyond the boundary of San Bernardino County and into neighboring Riverside County. A substantial identification of these impact areas is contained within the "Safety Impact" section of the plan. Details of jurisdiction pertaining to this area is included within the "Summary of Findings and Recommendations" section of this ACLUP.

ABBREVIATIONS and GLOSSARY

AICUZ: Air Installation Compatible Use Zone: In study form, an identification of impact zones, generated from military airfield use, on the land surrounding the specific military facility. (DOD Instruction 4165.57, November 8, 1977)

ACLUP: Airport Comprehensive Land Use Plan: Terminology used in some general plans to differentiate between an existing comprehensive land use plans (unrelated to airports) and an airport comprehensive land use plan, the subject of PUC Section 21670.

ALUC: Airport Land Use Commission: A California State authorized body, existing in each countypursuant to PUC Section 21670, and having the responsibility to develop plans for achieving land use compatibility between airports and their environs.

APZ: Accident Potential Zone: A designated area of higher likelihood of accidents.

Basic Utility Airport – Stage I: An airport that serves 75% of the single-engine and small twin-engine airplanes used for personal and business purposes.

Basic Utility Airport – Stage II: An airport that serves all the airplanes of Stage I, plus some small business and air taxi-type twin-engine airplanes. Precision approach operations are not usually anticipated.

CFR: Code of Federal Regulations: A codification of the general and permanent rules published in the Federal Register by the executive department and agencies of the Federal Government.

CLUP: Comprehensive Land Use Plan: A specific plan, formulated by the ALUC, that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the ALUC.

CNEL: Community Noise Equivalent Level: An average daily noise level, averaged for each of the 24 hours, and weighted more heavily during evening and nighttime hours to account for the lower tolerance of persons to noise during those hours.

dB: Decibel: A unit for describing the intensity or level of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to a standard reference pressure.

dB(A): A-weighted sound level, in decibels, as measured on a sound level meter equipped with weighting networks that represent the way the human ear hears certain sounds.

Displaced Threshold: A runway threshold that is located at a point other than the designated beginning of the runway.

DOA: Division of Aeronautics: A division of the California, Department of Transportation with responsibility for the health and safety of all public use airports located within the State.

FAA: Federal Aviation Administration: A Federal agency charged with regulating air commerce to promote its safety and development, encouraging and developing civil aviation, air traffic control, and air navigation and promoting the development of a national system of airports.

FAR: Federal Aviation Regulation: Regulations issued by the FAA to regulate air commerce; issued as separate "Parts".

FSS: Flight Service Station: FAA facilities which provide pilot briefings on weather, airports, altitudes, routes, and other flight planning information.

GA: General Aviation: All types of aviation other than that performed by air carriers and the military.

General Utility Airport – Stage I: This type of airport serves all small airplanes. Precision approach operations are not usually anticipated.

General Utility Airport – Stage II: This type of airport serves larger aircraft having an approach speed of up to 121 knots. The capability for precision approach operations usually exists.

IFR: Instrument Flight Rules: Rules governing the procedures for conducting flight under instrument meteorological conditions.

ILS: Instrument Landing System: An electronic instrument guidance system, designed to permit the pilot of a properly equipped aircraft, exact alignment and angle of descent on final approach for landing.

Ldn: Average day-night sound level. The average equivalent A-weighted sound level during a 24 hour day obtained by adding ten decibels to the hourly noise levels measured during the night (from 10 p.m. to 7 am).

NAVAID: Navigational Aid: Any visual or electronic device (airborne or on the surface) which provides point to point guidance information or position data to aircraft in flight. A frangible NAVAID is a NAVAID whose properties allow it to fail at a specified impact load.

Nonprecision Instrument Runway: A runway having an existing or planned instrument approach procedure from which a straight in landing is approved by no electronic glide slope information is available and for which no precision facilities are planned.

NTSB: National Transportation Safety Board: Federal Government agency that investigates and records all aviation accidents.

NPIAS: National Plan of Integrated Airport Systems: A plan, prepared by the FAA, which identifies the nation's system of airports and airport development.

OFA: Object Free Area: A two dimensional ground area surrounding runways, taxiways, and taxilanes which is clear of objects except for objects whose location is fixed by function.

OFZ: Obstacle Free Zone: The airspace above any of 3 surfaces that comprise the overall OFZ, i.e. Ruway OFZ (centered on the runway centerline), the Inner-Approach OFZ (centered on the extended runway centerline) and the Inner-transitional OFZ (located on the outer edges of the runway OFZ and the inner-apporach OFZ).

OPR: Office of Planning and Research: Author of the State of California, General Plan Guidelines and CEQA Guidelines.

Referral Area: A designated area consisting of various noise, safety and height restriction impacts, grouped together by the level of intensity of the associated impacts.

Runway: A defined rectangular surface on an airport prepared or suitable for landing or takeoff of airplanes.

RPZ: Runway Protection Zone: An area (formerly known as the clear zone) used to enhance the safety of aircraft operations. It is at ground level beyond the runway end.

Safety Zone: An area located in the vicinity of an airport in which land use restrictions are established to protect the safety of the public.

Threshold: The beginning of that portion of the runway available and suitable for the landing of airplanes.

VFR: Visual Flight Rules: Flight rules that identify conditions when weather is adequate for aircraft to maintain safe separation by visual means. Under VFR conditions safe separation between aircraft is the responsibility of the pilot.

REFERENCES

Federal Government:

FAA – Advisory Circular 150/5020-1. Noise Control and Compatibility Planning for Airports.

FAA – Advisory Circular 150/5300-13. Airport Design.

FAR Part 77 – Objects Affecting Navigable Airspace.

FAR Part 150 – Airport Noise Compatibility Planning.

California State Government:

DOA – Airport Land Use Planning Handbook.

OPR – Guidelines for the Preparation and Control of the Noise Elements of the General Plan.

OPR – California Environmental Quality Act Guidelines.

OPR – General Plan Guidelines.

San Bernardino County:

General Plan – Noise Element
– Man-Made Hazards
a. Airport Safety Issue
b. Noise Issue

ALUC - Interim Plan.

Chino Airport Master Plan – November 1986.

ALUC PLAN CONSISTENCY

Once this ACLUP has been adopted by the San Bernardino County ALUC, development applications that fall within the criteria of this plan, need no longer be referred to the ALUC for approval. Airport related review of development applications shall be accomplished by the reviewing jurisdiction pursuant to the policies and standards contained in this document. Any zoning changes (apart from those recommended, and thus adopted, within this ACLUP) contemplated by the County or the City of Chino, that lie within the referral areas defined within this plan, along with specific plan and general plan required by Public Utilities Code, Section 21676, must still be first referred to the ALUC.

Section 65302.3 of the California Government Code - Planning and Zoning Law requires that general plans be consistent with ALUC plans. Once adopted by the ALUC, the County or the City of Chino have 180 days to accomplish this consistency, with this ACLUP.

If the ALUC finds that the County or the City of Chino have not revised their general plans, or overruled the ALUC, the ALUC may require the County or City to submit all subsequent actions, regulations, or permits in the affected area to the ALUC for consistency determination. If the ALUC finds the proposed action inconsistent, the County or the City must hold a public hearing to reconsider its proposal. If, after the public hearing, the County or City still wishes to pursue the action, it may overrule the ALUC, once again, on a two-third majority vote, based on specific findings, as stated in PUC Section 21676.5.

AIRPORT OPERATIONS AND FACILITIES:

a). Existing:

Chino Airport is located approximately 4 miles South-East of the City of Chino (Figure I-1) within a predominately Agricultural Preserve area. The airport is owned and operated by the County of San Bernardino – Department of Airports. The airport office (phone {714} 597-3910) is open during normal office hours. Chino airport is classified in the National Plan of Integrated Airport Systems (NP1AS) as a Basic Transport, Reliever Airport.

Chino Airport is an Air Traffic Controlled facility lying under the Ontario Airport Radar Service Area. The airport has a 6,204 foot primary runway (designation 3/21) and a 3,856 foot cross-wind runway (designation 8/26).

Fuel (80-100LL & Jet-A) is available along with tie-downs and transient parking. Over 600, primarily single engine aircraft are based at the airport. A basic diagram of the existing facilities and layout of the airport is shown in Figure 1-2.

Figure I-1

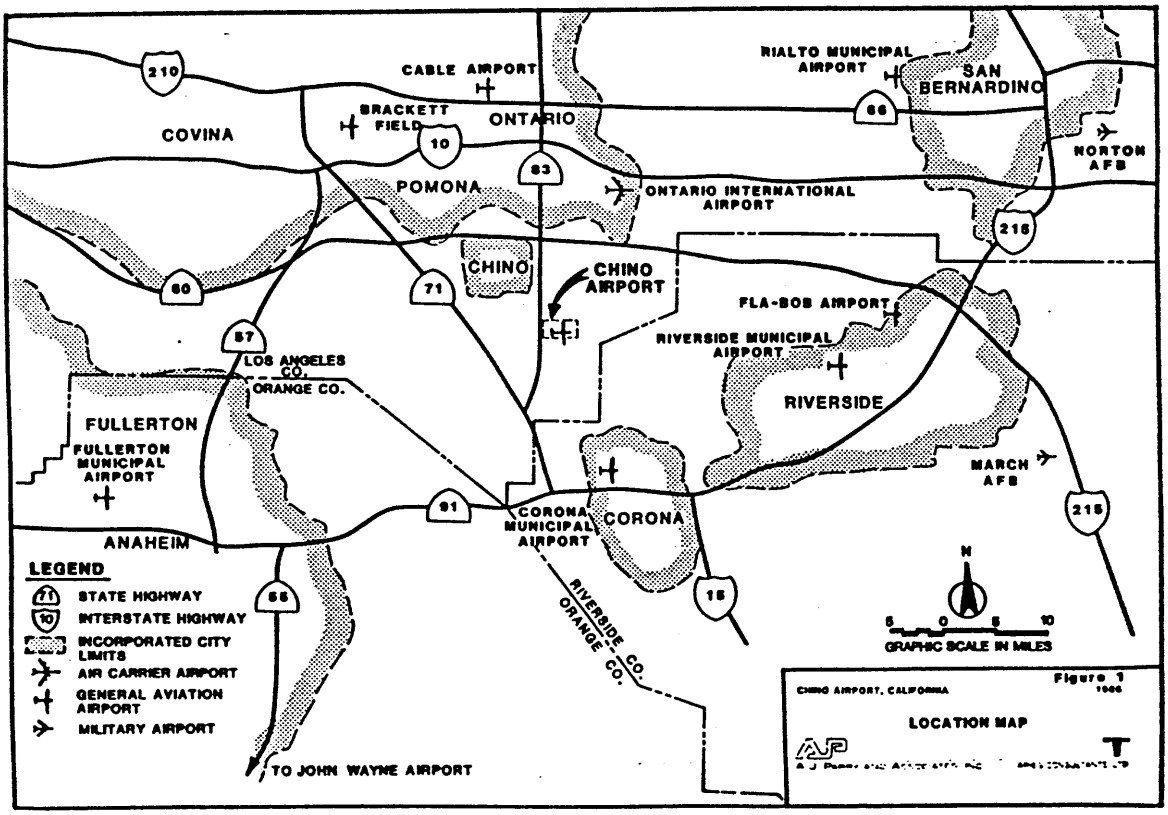
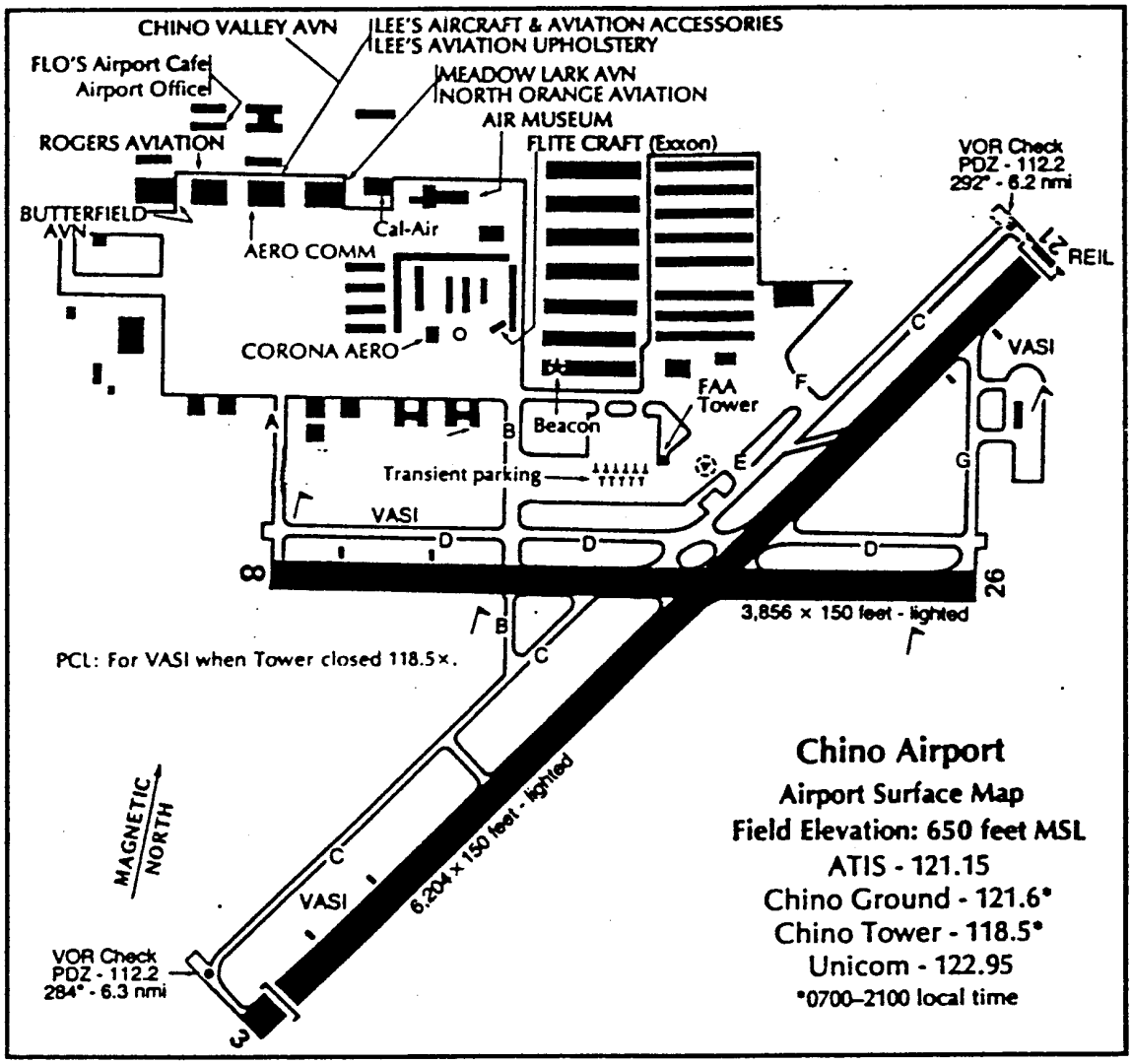


Figure I-2



b). Ultimate:

Substantial enhancement of the airport and its facilities, along with a significant increase in flight operations, is projected within the airport master plan. A new 7,000 foot runway (8R/26L) is planned for construction during 1993/1994. This runway will be equipped to enable pilots to make a precision instrument approach into Chino Airport. A consolidation of existing and future runways and facilities is incorporated into the approved Airport Layout Plan (ALP) shown in Figure I-3.

Figure I-3 – Chino Aiport Layout Plan
(Legal size)

Figure I-3 – Chino Aiport Layout Plan
(11X17)

SUMMARY OF FINDINGS AND RECOMMENDATIONS

The location of Chino Airport within a predominately rural setting, helps to ensure that the overall intent of California's Airport Land Use Planning Law will be met. The adoption of recommendations contained herein will help ensure that future development within the region will be as compatible as possible with the Chino Airport and its future operations at a much expanded level.

The referral areas defined within this plan are in accordance with various regulatory agencies guidelines. Where ever possible, graphics illustrating specific impacts incorporated within the Chino Airport Master plan and/or E.I.R., have been used, or in the alternative consolidated and/or overlaid onto other area maps for the purposes necessary within this plan.

This section of the ACLUP consolidates all of the Chino Airport generated impacts into three primary referral areas (Figure I-4). Each impact description and land use recommendation is deliberately intended to be as brief as possible. As such, when reviewing this section, it is necessary to refer to the more detailed impact identifications contained within the noise and safety impact sections of this plan.

Referral Area "A"

This is the most critical safety impact area associated with any airport. The area is made up of the FAA classified primary surface of the airport, the Runway Protection Zone (RPZ) and a portion of the approach and departure surface. The majority of this area is designated as an Object Free Area (OFA) with this status also applying to moving objects, i.e. vehicles.

The RPZ was formerly known as the "Clear Zone". The intent is to ensure that this zone remains clear of all obstacles that could create a potential hazard to aviation. This ACLUP recommends (in accordance with FAA Advisory Circular 150/5300-13, Section 212 b.) that the airport owner (the County of San Bernardino) acquire all land that lies within this zone. The Airport Layout Plan (Figure I-3) plots the RPZ's and the area not presently located on airport property.

All of the 75 CNEL and 90% of the 70 CNEL noise impact zones (described in more detail in Figure II-6) at Chino Airport, lie within Referral Area "A". The recommendation that the airport owner acquire all land within this zone, for safety reasons, also effectively mitigates the noise consequences within this referral area.

Land use within Referral Area "A" is extremely restricted. Under normal circumstances, no structures what-so-ever are permitted. Few people (no people is preferred, or if absolutely necessary, for a short time only, up to 10 persons per acre at any one time) should be allowed within the outer area of the RPZ. Open Space or agricultural use (provided that it doesn't attract birds) is acceptable in this zone.

Existing County "Agricultural/Agricultural Preserve" land use district (AG-AP), located on the perimeter of this referral area (within the area recommended for acquisition by the airport owner) is consistent with the land use recommendations of this plan.

Referral Area "B"

This area is made up of Safety Zone II plus the balance of the approach and departure zones not falling within the RPZ. A small pocket of the 70 CNEL noise impact zone exists within the City of Chino "Urban Reserve" zoned area located at the western end of Referral Area "A". All of the 65 CNEL noise impact zone emanating from the Chino Airport, is located within this referral area.

Traditionally, this area experiences a high percentage of traffic accidents. As such, all proposed residential and industrial development within this area should be carefully evaluated. Additionally, the provisions of the State's noise standards (particularly Section 5014 -see Appendix Page "B-7") must be adhered to when granting permits for residential development.

A limited number of detached, Single Family dwellings are acceptable within this area. All general assembly buildings are prohibited, along with any other facility or outdoor usage that could result in a congregation of 50 persons or more per acre.

Limited light industrial and manufacturing land uses would be acceptable within this area provided that population density and FAR Part 77 height restrictions are adhered to. No use what-so-ever of any hazardous nature is permitted.

Existing County "Agricultural/Agricultural Preserve" land use district (AG-AP) is consistent with recommended land uses within this referral area. Irrespective, zoning should be amended to incorporate restrictions in regard to limiting the number of persons permitted within any facility at any given time. In addition, special consideration should be given to ensuring that interior noise levels of no more than 45 Ldn (CNEL) apply to all proposed single family dwellings in this area.

Referral Area "C"

The outer boundary of this referral area lies on an arc with a radius of approximately 10,000 feet from the airport. This area is substantially the same as Safety Zone III. The threat of aircraft accidents in this area is below that of the other referral areas, however some do occur, and it is necessary to ensure that some continuing restrictions on land use are imposed when planning within this area. Noise levels vary, however they could average in the range of 55/60 CNEL, which under some conditions may still be the cause of considerable annoyance to some members of the community.

No restrictions are generally placed on residential zoning within this area. Light industrial and manufacturing uses are also acceptable, provided that they do not generate any visual, electronic or physical hazards to aircraft. No above ground hazardous materials are allowed, however underground fuel tanks are acceptable. General business facilities, office buildings, motels, banks and eating and drinking facilities are permitted. In all cases, consideration should be given to some form of shielding, such as the use of trees etc. near buildings.

All existing County "Institutional" and "Agricultural Preserve" land use districts are consistent with the recommended uses within this referral area and should be maintained.

All existing City of Chino "Business", "Residential" and "Office" zoning, located near the North-Eastern perimeter of Referral Area "C", are consistent uses within this zone and should be maintained.

The existing land uses (other than the Correctional Facility) within the City of Chino "Urban Reserve" zoned areas are consistent with those permitted within this referral area. At such time as uses are re-evaluated within this area, specific consideration should be given to the impacts generated by the airport, and any prospective changes should be referred to the ALUC for approval.

Riverside County:

Certain impacts emanating from Chino Airport protrude into neighboring Riverside County. The California Attorney General, in an opinion issued on May 7,1991 (no. 90-914), found that the jurisdiction of a County ALUC is limited by County boundaries. Accordingly all recommendations of this ACLUP shall be limited to those areas located within San Bernardino County, within the jurisdiction of the San Bernardino County ALUC.

This ACLUP does however identify those areas located in Riverside County that fall within the various impact zones from Chino Airport. These are:

a) the Eastern end of Referral Area "B"
b) the South-Easterly portion of Referral Area "C"
c) the Western end of the FAR Part 77 designated "Extended Runway Centerline"

Existing Riverside County "Agricultural" zoning (A2-10) located within these impact zones is certainly consistent with recommended land uses for all of these areas.

Riverside County ALUC was notified of this position in a March 5, 1991 letter (Appendix "D").

General

An ALUC has no power over the operations of an airport, nor does it have any control over any existing facilities or land uses located within the impact areas of the airport, as defined within this ACLUP. As such, this plan does not take into consideration any existing land uses within its sphere of influence, however it does recommend that, to the extent possible, specific land uses within the vicinity should be modified to conform with acceptable criteria for land uses within the vicinity of airports.

Two correctional institutions are located within the vicinity of the airport, and it is recognized that this type of land use is not compatible with airport operations. While the actual facility proximity is close to the airport, their locations in respect to the runway configuration (the runway centerline projections) is marginally compatible.

As Chino Airport has Air Traffic Control, the airport owner, in conjunction with the FAA controllers, are in a position to effectively mitigate many potential impacts that may be generated by aircraft overflying surrounding areas at low altitudes. It is recommended that, to the extent possible, flight paths (at altitudes below 1,000 ft) be restricted to the safety zones (runway centerlines) plotted in this plan. Note that the flight pattern altitude at Chino Airport is 1,400 feet MSL (750 feet above ground level) for reciprocating engine aircraft and 2,000 ft MSL for jet aircraft.

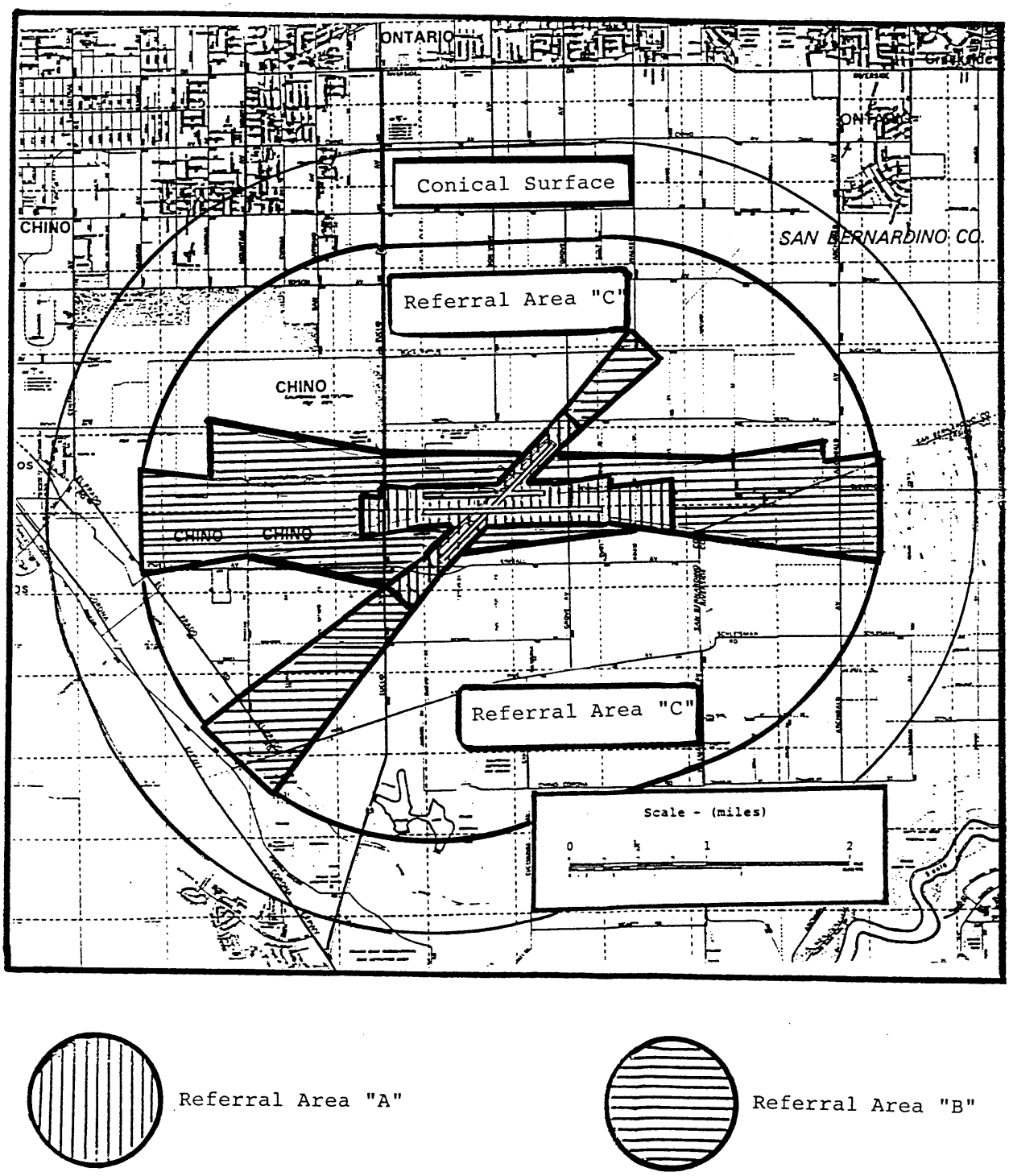
Specific emphasis should also be placed on directing traffic as far away as possible, from the two correctional facilities (actual buildings) and also from the concentrated residential area (zoned RD-14) located near the perimeter of the North-Western portion of Referral Area "C".

While not specifically incorporated as a referral area, a Conical Surface extends for a distance of 4,000 feet from the perimeter of Referral Area "c I'. This area is still the subject of FAA Part 77 height restrictions, and as such, should be identified within the overall impact area where it is necessary to obtain an Avigation Easement.

It is recommended that the County of San Bernardino and the City of Chino obtain a standard form of Avigation Easement for all land transfers and/or proposed development located within the area between the airport and the outer boundary of the Conical Surface.

Figure I-4

Chino Airport Referral Areas



NOISE IMPACT

and

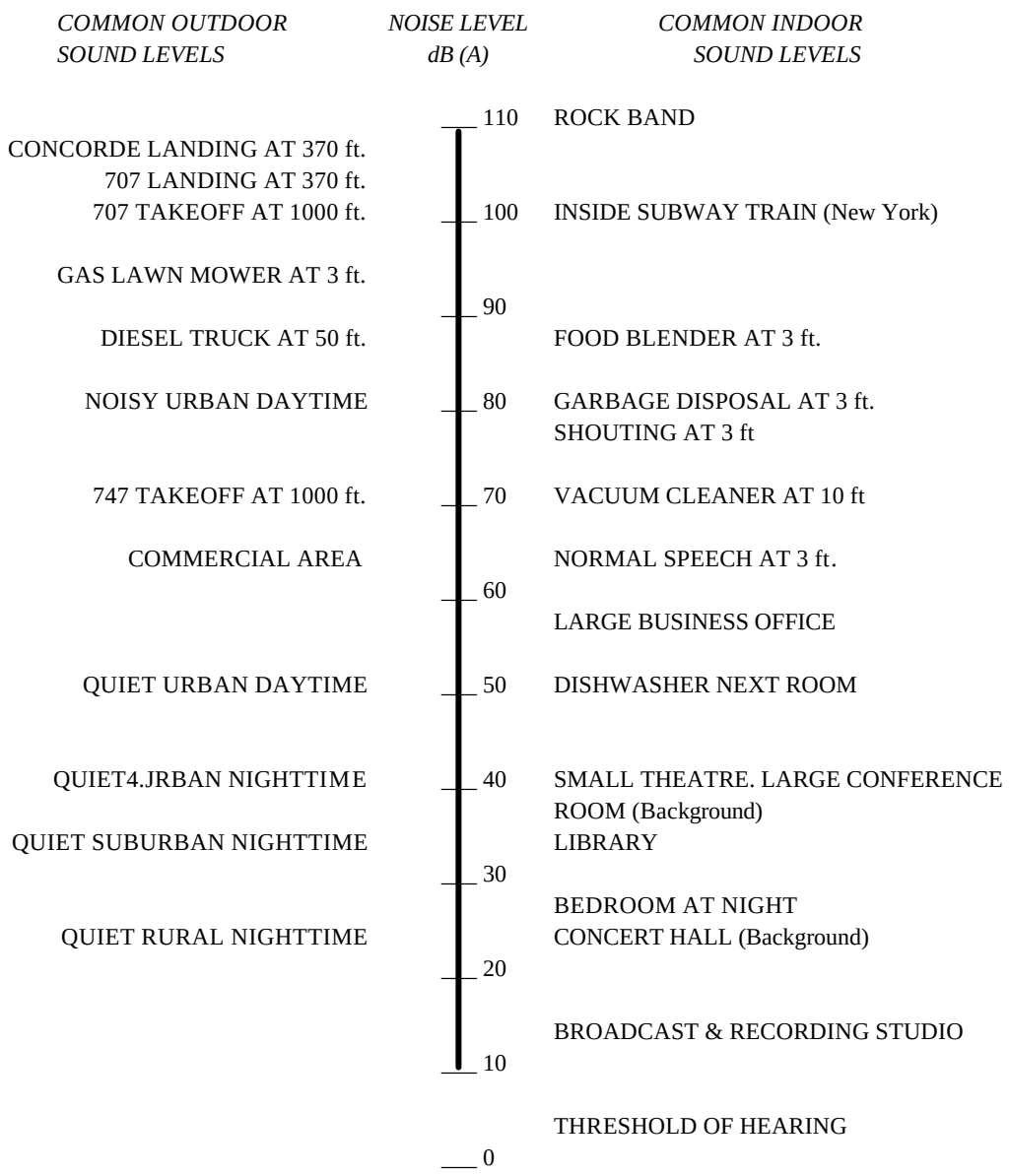
REFERRAL AREAS

NOISE

The intensity of aircraft noise varies, depending upon the type of aircraft and the proximity of the listener. The ear shattering sound of a large jet aircraft at close range is a far cry from the sound of a small, single engine, general aviation aircraft at a distance of a couple of hundred yards. Examples of common indoor and outdoor sound levels are provided in Figure II-1.

The dB scale measure single event noise incidents on an occurrence by occurrence basis. With aircraft noise, the sound level increases as the aircraft approaches and it diminishes as the aircraft flies away. The sound measurements of the events itemized were taken at the peak of the occurrence.

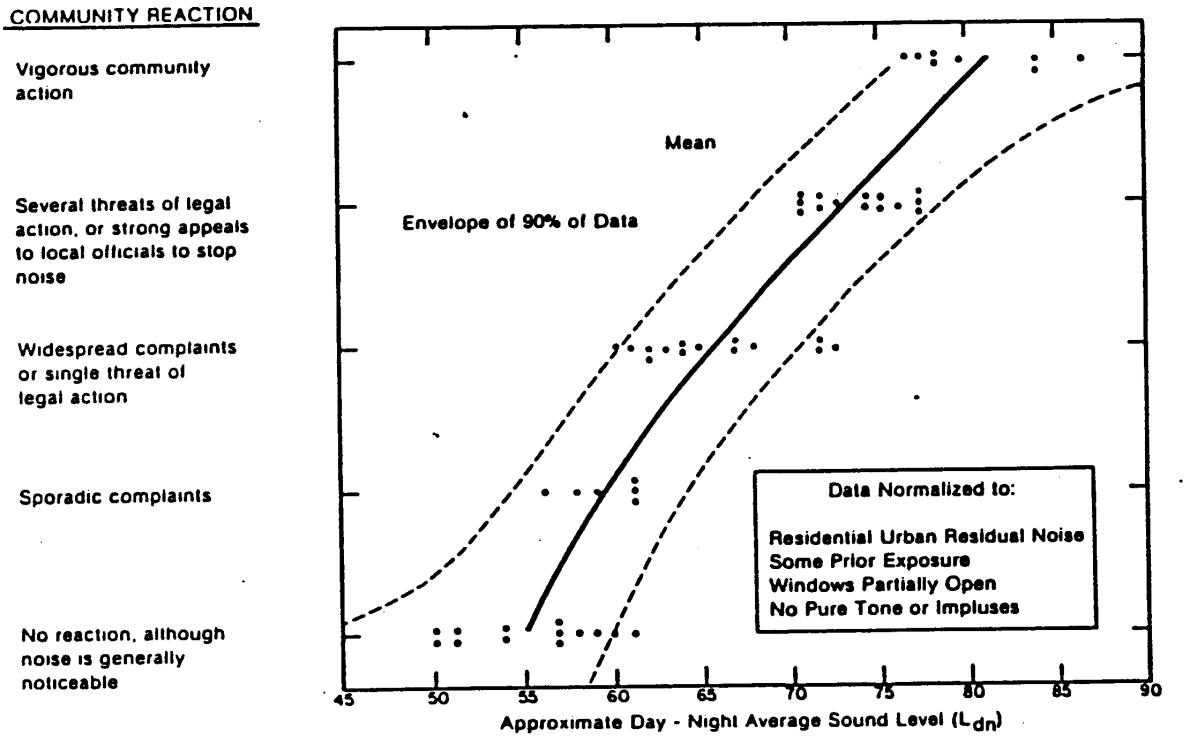
Figure II-1
Measured Noise Level Comparisons, dB(A)



Aircraft noise has a varying effect on individuals. Jet noise in the middle of the day on a busy street, may hardly even be noticed. The same level of noise at night, when relaxing or awakened from sleep, could be extremely annoying. For land use planning purposes, it is important to know when annoyance results in community action and just how much action. The way community response relates to noise exposure level is illustrated in Figure II-2.

California has adopted a standard (PUC Section 21669) for the acceptable level of aircraft noise for persons living in the vicinity of airports. This standard is 65 CNEL. Guidelines for airport noise planning have been established by various Federal, State and local Government agencies. The California, DOA – Noise Standards are included in this plan in Appendix "B."

Figure II-2
Community Reaction to Intrusive Noises



The State of California developed a noise rating method (CNEL) that is used to calculate community noise exposure around airports. Note that the Federal Government modeled its equivalent (Ldn) from California's CNEL and only a marginal difference (less than 1 dB at 65 CNEL) exists between the two scales. CNEL is calculated in decibels and represents the average daytime noise level during a 24 hour day, adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and night time periods relative to the day time period.

In the California State -Airport Land Use Planning Handbook an analysis of ALUC plans at a number of general aviation airports, showed that residential development was discouraged in the 60-65 CNEL noise impact area. At Chino Airport, the potential for annoyance (and thus complaints) exists anywhere within the airport traffic pattern and anywhere aircraft are flying below 500 feet. This is traditionally within the 55 CNEL contour, which at Chino Airport in the future, could extend for up to two miles from the runway, at a width of between one quarter to one half a mile as flown by pilots.

Land use restriction within the 60 CNEL, and in some cases the 55 CNEL impact areas, may include prohibiting residential development underneath the traffic pattern or limiting development to low density uses. Other measures that have been recommended where aircraft are below 500 feet and in the general overflight area include requirements for noise easements and notification of prospective property owners.

In San Bernardino County, the following policy exists:

Exterior:	Residential construction shall not be permitted in areas where the aircraft noise exposure exceeds an Ldn of 65 dB within the exterior living spaces.
Interior:	Building construction shall mitigate the aircraft noise exposure to an Ldn of 45 dB or less within the interior living space of all new residential units.

In terms of building construction, all residences within the 60 to 65 dB Ldn range will require forced air ventilation with openable windows in a closed position.

Title 24 of the State Noise Insulation Standards (California Administrative Code) requires than an acoustical analysis be prepared for all new developments of multi-family dwellings, condominiums, hotels and motels proposed for areas within the 60 CNEL contour of a major noise source for the purpose of documenting that an acceptable interior noise level of 45 CNEL or below will be achieved with the windows and doors closed. Chapter 35 of the Uniform Building Code (UBC) also requires that common wall and floor/ceiling assemblies within multi-family dwellings comply with minimum standards for the transmission of airborne sound and structureborne impact noise.

The most commonly referred to matrix of its type in California (Table II-3) details land use compatibility for community noise equivalent levels. It is sourced from the Governor's Office of Planning and Research, Guidelines for the preparation and content of the Noise Element of the General Plan, Appendix A.

Figure II-3

LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS

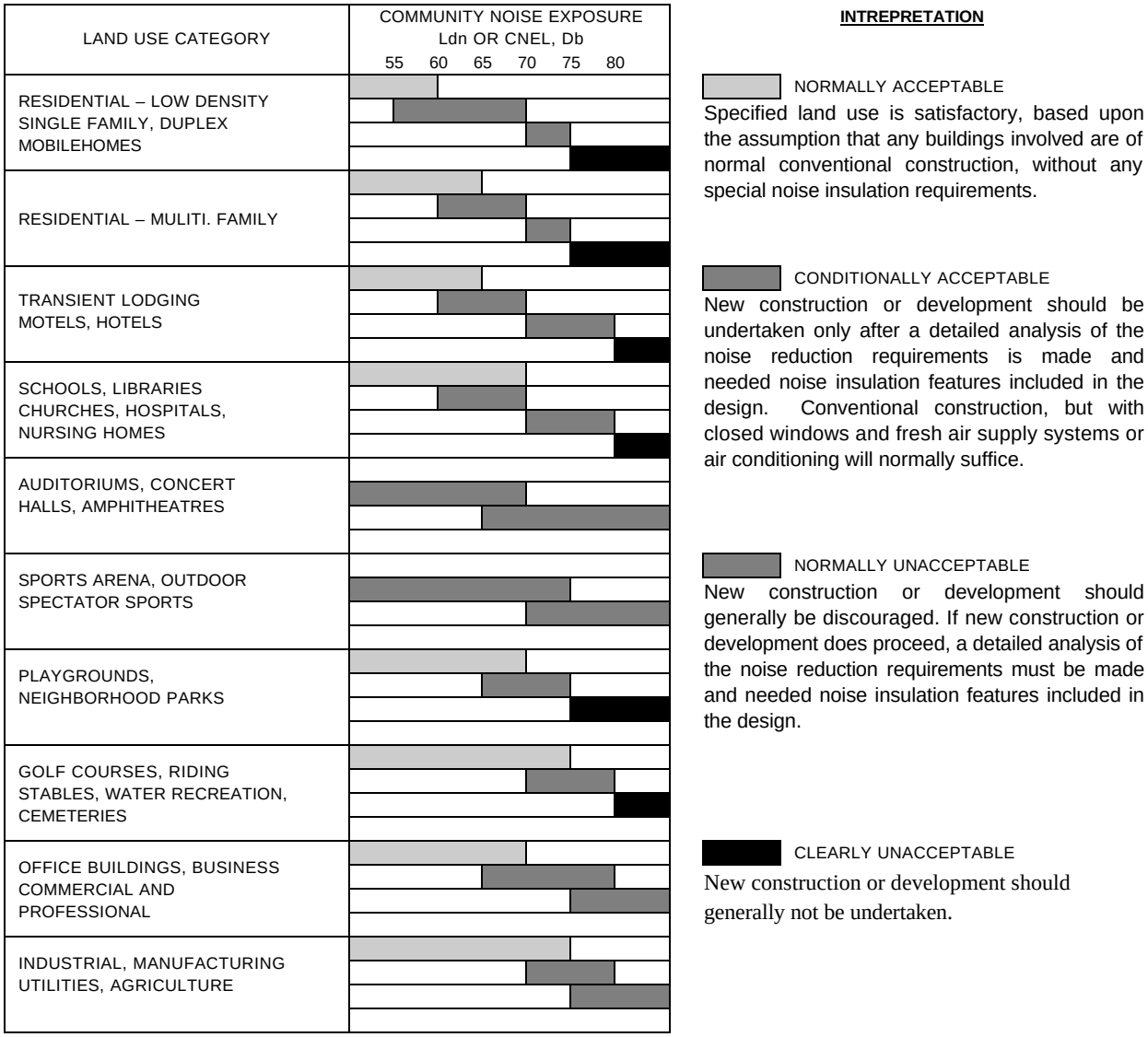


Figure II-4 (sourced from the Noise Element of the San Bernardino County General Plan) provides the standards that are followed in this plan.

Figure II-4

Interior/Exterior Noise Level Standards
Mobile Noise Sources

Land Uses		Ldn (or CNEL), dB	
Categories	Uses	Interior[1]	Exterior[2]
Residential	Single & multi-family, duplex	45	60[3]
	Mobile Home	45	60[3]
Commercial	Hotel, motel, transient lodging	45	60[3]
	Commercial retail, bank, restaurant	50	?
	Office building, research & development, professional offices	45	65
	Amphitheater, concert ball, auditorium, movie theater	45	?
Institutional/ Public	Hospital, nursing home, school, classroom, church, library	45	65
Open Space	Park	?	65

1. Interior living environment excluding bathroom, kitchens, toilets, closets corridors.

2. Outdoor environment limited to:
   - Private yard of single family dwellings
   - Multi-family private patios or balconies
   - Mobile home parks
   - Hospital/office building patios
   - Park picnic areas
   - School playgrounds
   - Hotel and motel recreation areas

3. An exterior noise level of up to 65 dB Ldn (or CNEL) will be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB Ldn (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level win necessitate the use of air conditioning or mechanical ventilation.

Figure II-5 – Year 2005 CNEL Noise Contours
(Legal Size)

Figure II-5 – Year 2005 CNEL Noise Contours
(11X17)

SAFETY IMPACT

and

PLANNING BOUNDARIES

SAFETY

The overriding objective of California's airport land use planning law is to protect the public's health, safety and welfare. Two critical elements must be addressed when assessing safety issues and attempting to determine measures that would effectively minimize potential injury and/or loss of life that could result from any incident related to an aircraft. These are safety on the ground and safety in the air.

In proportion to overall air operations, the actual incidence of aviation accidents is extremely minute. Additionally, .it is normally not feasible to plan in advance (at other than major air carrier airports) measures that would minimize loss of life on the ground should an accident, such as a 747 crash into a heavily populated urban area, occur. As such, the potential for such a disaster is not explored within the context of this plan. On the other hand, this plan attempts to ensure that every effort is made to minimize any potential impact should an aircraft crash of any type occur, within the region surrounding the airport, by an aircraft that has taken off or intends to land at Chino Airport.

A number of theories exist in respect to the level of appropriate land uses and/or population densities around airports verses the potential for injury or property damage should an accident occur. An assessment of National Transportation Safety Board (NTSB) statistics reveals that while an overwhelming majority of general aviation (GA) accidents occur actually on the airport proper, the potential for an accident to take place near the airport is still substantial, and in the majority of cases, more serious in nature. Additionally, the statistics reveal that accidents that occur near airports tend to be evenly divided between aircraft taking off and aircraft landing Note that due to a revision of NTSB reporting formats, the most recent statistics showing the actual location of GA accidents in relationship to airports, were published for the period 1974-1979 (Table III-l). A recent study, undertaken for inclusion within the Kern County ALUC "Policy Plan", also suggests that Safety should be a concern well beyond an airport's Runway Protection Zone (RPZ).

Table III-2 shows more recent NTSB statistics, however on-airport accidents during landing and takeoff were not broken out of the broader classifications. Irrespective of these considerations, little difference within the percentages between the categories is apparent with the more recent figures and thus, it is logical to assume that the percentage of accident locations derived from the 1974-1979 statistics remains constant.

Figure III-1

Major General Aviation Accidents (1974-1979)

Landing or Takeoff	Location	Detailed Phase of Operation	Number of Accidents	%
Takeoff	On-Airport	Run	1,251	
		Aborted Takeoff	384	
	Near Airport	Initial Climb	3,182	100%
	Other		236	
	Total		5,053	
Landing	On-Airport	Level Off-Touchdown	3,909	
		Roll	3,336	
	Near Airport	Traffic Pattern-Circling	542	16.7%
		Final Approach - VFR	1,706	52.6
		Initial Approach	61	1.9
		Final Approach - IFR	228	7.0
		Go Around - VFR	653	20.2
		Missed Approach - IFR	51	1.6
Near Airport Sub-Total			3,241	100.0%
Other			497	
Total			10,983	

Note: Major accidents are accidents in which the aircraft was destroyed or substantially damaged.

Figure III-2

MOST PREVALENT FIRST OCCURRENCES
ALL ACCIDENTS
1987 AND 1982 - 1986

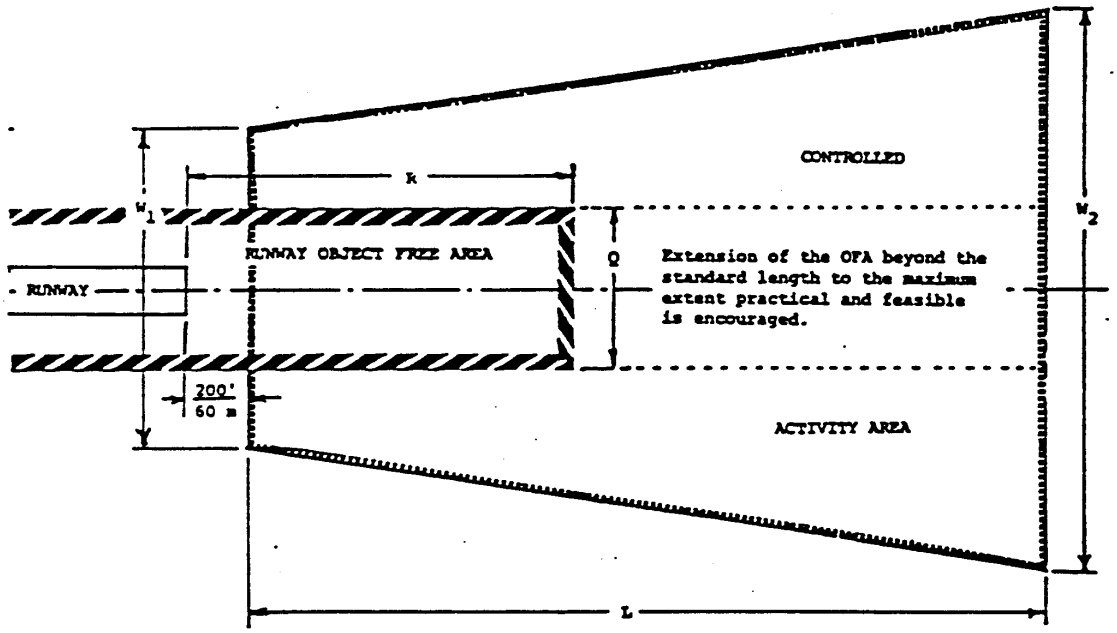
Type of Occurrence	1987 No.	1987 Percent	1982 - 1986 Mean	1982 - 1986 Percent
Loss of control - in flight	326	13.1	369.6	12.5
Loss of engine power (total) non-mechanical	259	10.4	335.0	11.3
Loss of control - on ground	322	13.0	317.6	10.7
In flight collision with object	186	7.5	236.2	8.0
In flight encounter with weather	150	6.0	203.2	6.9
In flight collision with terrain/water	109	4.4	192.8	6.5
Loss of engine power	171	6.9	184.8	6.2
Hard landing	132	5.3	155.2	5.2
Airframe/component/system failure/malfunction	132	5.3	147.2	5.0
Loss of engine power (total) - mech failure/malf	113	4.5	132.4	4.5
Overrun	77	3.1	98.2	3.3
On ground collision with object	65	2.6	84.8	2.9
Loss of engine power (partial) - mech failure/malf	51	2.1	71.4	2.4
Undershoot	41	1.6	56.0	1.9
Loss of engine power(partial) - non-mechanical	53	2.1	49.6	1.7
On ground collision with terrain/water	39	1.6	46.6	1.6
Midair collision	41	1.6	44.0	1.5
Nose over	25	1.0	38.6	1.3
(All other types)	194	7.8	198.2	6.7
Number of Aircraft	2486	100.0	2961.4	100.0

The obvious solution to minimize injury or loss of life on the ground, should an aircraft accident occur near the airport, is to ensure that no structures or activities involving the public take place in areas extending outwards from the runway centerline. This area is referred to as a safety zone.

Located within this safety zone is a critical impact area known as the Runway Protection Zone (RPZ). This area was formally known as the runway clear zone. FAA Advisory Circular (AC) 150-5300-13 defines the RPZ as trapezoidal in shape and centered about the extended runway centerline. It begins 200 feet beyond the end of the area usable for takeoff and landing, Displacing the threshold does not change the beginning point of the RPZ. The RPZ dimensions are functions of the design aircraft, type of operation, and visibility minimums. A diagram of a typical RPZ is shown below (Figure III-3). The dimensions of the RPZ's for each runway at Chino airport i.e. Wl, W2, and L are listed in Table III-4. Note that all dimensions are measured in feet and calculated, based on criteria outlined in AC 150/5300-13, Table 2-5.

You will note that the dimensions of the RPZ's for each runway at Chino Airport vary significantly. Existing Runway 8 (future designation 8L) and Runway 21 are designated VFR and all distances within the RPZ are calculated, based upon a visual approach. Existing Runway 26 (future 26R) and Runway 3 are classified for both VFR and nonprecision approaches. The new Runway 8R will also be designated for a nonprecision instrument approach. Future Runway 26L will be classified for a complete precision instrument approach.

Figure III-3



Runway Protection Zone

Table III-4

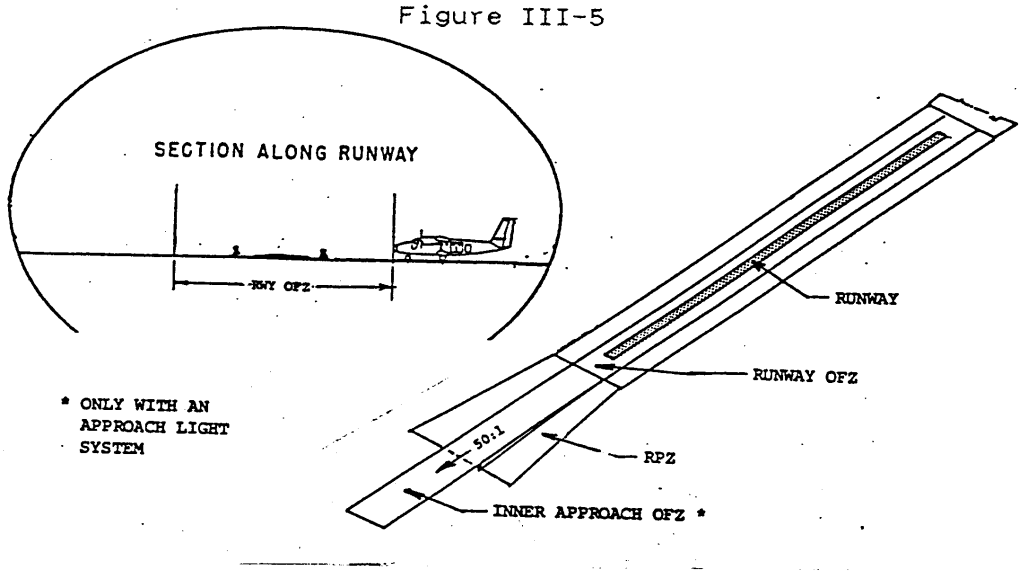
Runway End	Dimensions for Approach End RPZ			
	Length L	Inner Width W_1	Outer Width W_2	Area (acres)
26L (Future)	2,500	1,000	1,750	78.914
8R (Future)	1,700	1,000	1,425	47.320
26L (Future)	1,700	500	1,010	29.465
3	1,700	500	1,010	29.465
8L (Future)	1,000	500	700	13.770
21	1,000	500	700	13.770

Also located within the RPZ is a two dimensional ground area known as the runway Object Free Area (OFA. The runway OFA clearing standards precludes parked airplanes and objects, except for those objects whose location is fixed by function For runways 8L and 21, the OFA extends for a distance of 600 feet from the end of each runway at a width of 500 feet. The OFA of all other existing and future runways at Chino Airport are 800 feet in width and 1,000 feet in length, beyond the end of each runway.

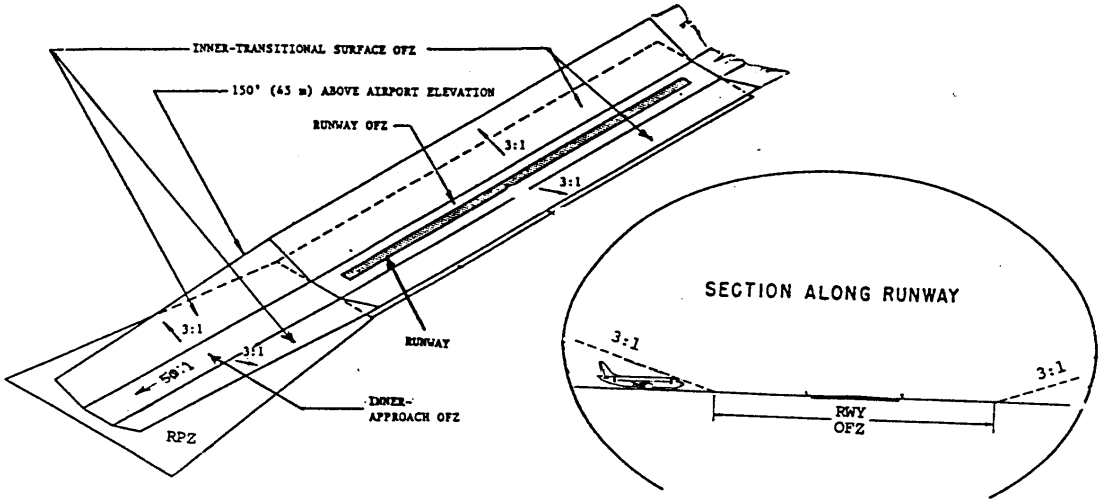
Supplementing the RPZ is an Obstacle Free Zone (OFZ). Figure III-5 diagrammatically shows the difference between the OFZ's for precision instrument and nonprecision instrument/visual runways. The OFZ is a three dimensional volume of airspace which supports the transition of ground to airborne aircraft operations (and vice versa). The OFZ clearing standards preclude taxiing and parked airplanes and object penetrations except for frangible NAVAID's whose location is fixed by function The runway OFZ and the inner approach OFZ comprise the overall OFZ of Chino Airport.

At all airports, the combined, runway and inner-approach OFZ extends for a distance of 200 feet beyond each end of each runway in a rectangular shape. At Chino Airport, the width of the OFZ is 400 feet for Runway 26L and 250 feet for all other existing and future runways.

Figure III-5



Obstacle free zone (OFZ) for nonprecision instrument and visual



Obstacle free zone (OFZ) for precision instrument runway

Within the Airspace Restriction section of this plan an area known as the "Approach Surface" is detailed. The two dimensional ground area of this approach surface is divided into two portions for the purpose of this section:

a. The RPZ which is the smaller , innermost area (sometimes referred to as Safety Zone I), and

b. Safety Zone II, which is the balance (outer) area.

Safety Zone II: Also referred to as the Outer Safety Zone, the center of which, runs along an imaginary projection of the runway centerline. While conforming with the shape of the FAA Part 77 Approach Surface, a variance in shape is suggested to incorporate any major flight track emanating from the primary departure runway in order to protect areas regularly overflown by departing aircraft.

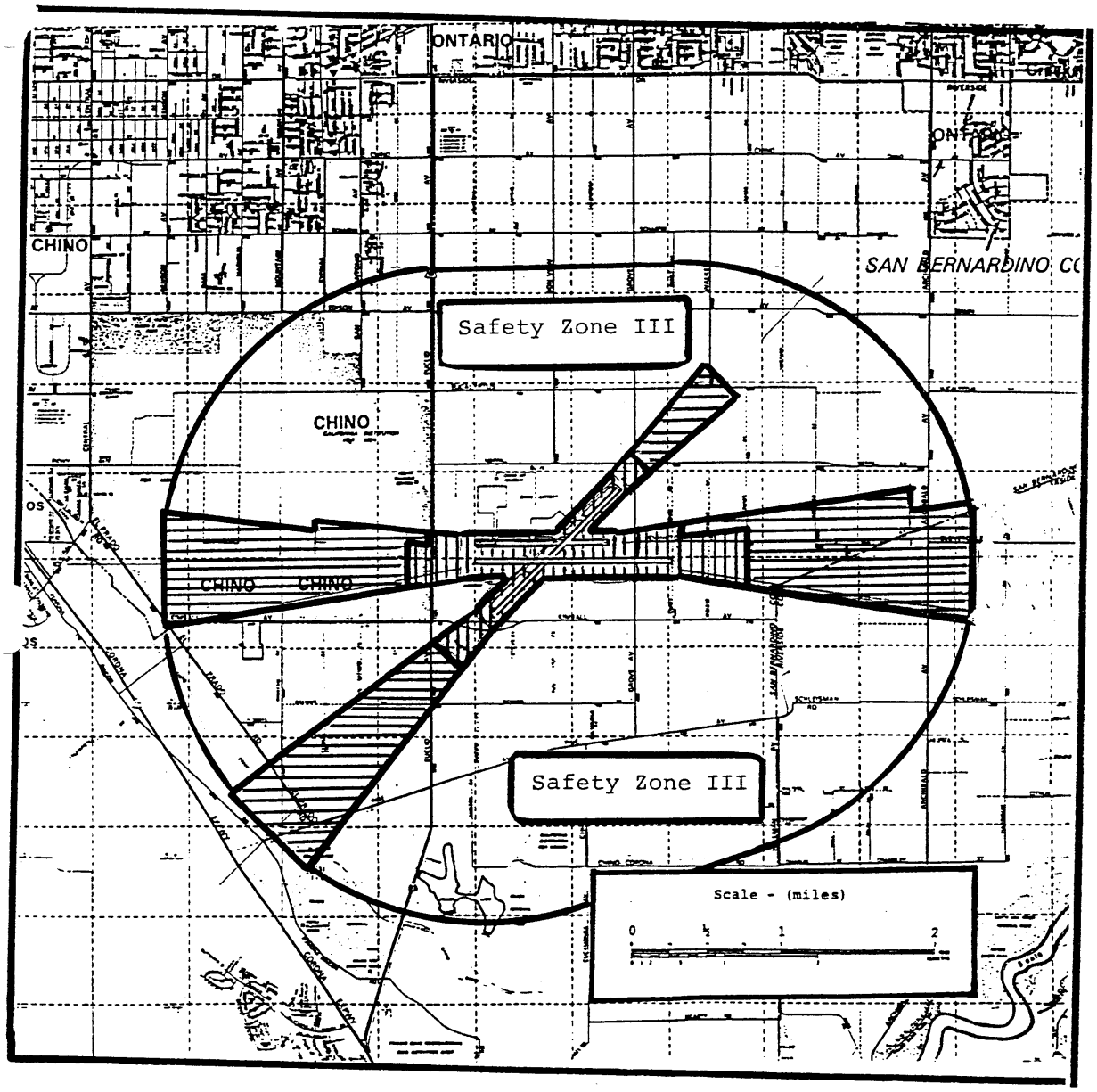
Safety Zone III: This zone is also known as the Traffic Pattern/Overflight Zone. The traffic pattern for general aviation airports is the envelope of aircraft flight paths associated with the pattern entry point, downwind, base, and final legs, while the overflight area is the larger area where aircraft are maneuvering to enter the pattern for landing. The flight pattern altitude at Chino Airport is 1,400 feet MSL (750 feet above ground level) for reciprocating engine aircraft and 2,000 feet MSL for jet aircraft. This area is also detailed within the Airspace Restriction section of this ACLUP under "Horizontal Surface".

The overall dimensions of Safety Zone II (the Approach Surface) at Chino Airport are detailed in Table III-6. Figure III-7 identifies each of the three safety zones in the vicinity of Chino Airport. Note that while the graphic shows portions of Safety Zones II and III protruding into neighboring Riverside County, the San Bernardino County ALUC has no jurisdiction in this area and as such, future land use decisions pertaining to this area are the responsibility of the Riverside County ALUC.

Table III-6

Runway End	Approach Surface Dimensions			
	Length	Inner Width	Outer Width	Slope
26L (Future)	10,000	1,000	16,000	50:1*
8R (Future)	10,000	1,000	3,500	34:1
26L (Future)	10,000	500	3,500	34:1
3	10,000	500	3,500	34:1
8L (Future)	5,000	500	1,500	20:1
21	5,000	500	1,500	20:1
* Note slope 50:1 for inner 10,000 feet plus 40:1 for outer 40,000 feet.				

Figure III-7



Primary Surface and RPZ

Safety Zone II

3-7

Land Uses and Population Densities

a) Runway Protection Zone:

FAA AC 150/5300-13 identifies a controlled activity area (Figure III-3) as the portion of the RPZ beyond the sides of the OFA. Within the area under the control of the airport authority, the following standards shall be implemented.

The airport owner shall acquire or control the RPZ to meet the clearing and land use standards.

i. Land uses shall be prohibited which might create glare and misleading lights or lead to the construction of residences, fuel handling and storage facilities, smoke generating activities, and places of assembly. Churches, schools, office buildings, shopping centers, and stadiums typify places of public assembly.

ii. While it is desirable to clear all objects from the RPZ, uses such as agricultural operations, provided they do not attract birds, and golf courses are normally acceptable outside of the OFA. Automobile parking, although discouraged, may be permitted provided it is located outside of the runway OFA extended and below the approach surface.

Note: The FAA studies existing and proposed, objects and activities, both off and on airports, with respect to their effect upon the safe and efficient use of the airports and the safety of persons and property on the ground. These objects need not be obstructions to air navigation, as defined in FAR Part 77. As a result of a study, the FAA may issue an advisory recommendation in opposition to the presence of any off-airport object or activity in the vicinity of the airport that conflicts with an airport planning or design standard or recommendation (AC 150/5300-13 paragraph 212).

b) Safety Zone II:

Residential land use should be strongly discouraged and other land uses restricted. Density restrictions are needed to ensure that large concentrations of people are not located within this safety zone. Recommended density limits are as follows:

- uses in structures: no more than 25 persons per acre at any one time; no more than 15 people in any one building.

- uses not in structures; no more than 50 persons per acre at any one time.

c) Safety Zone III:

Generally, ALUC's place few restrictions on residential uses within this area. Strong emphasis is still placed on limiting large assemblies of people in uses such as:

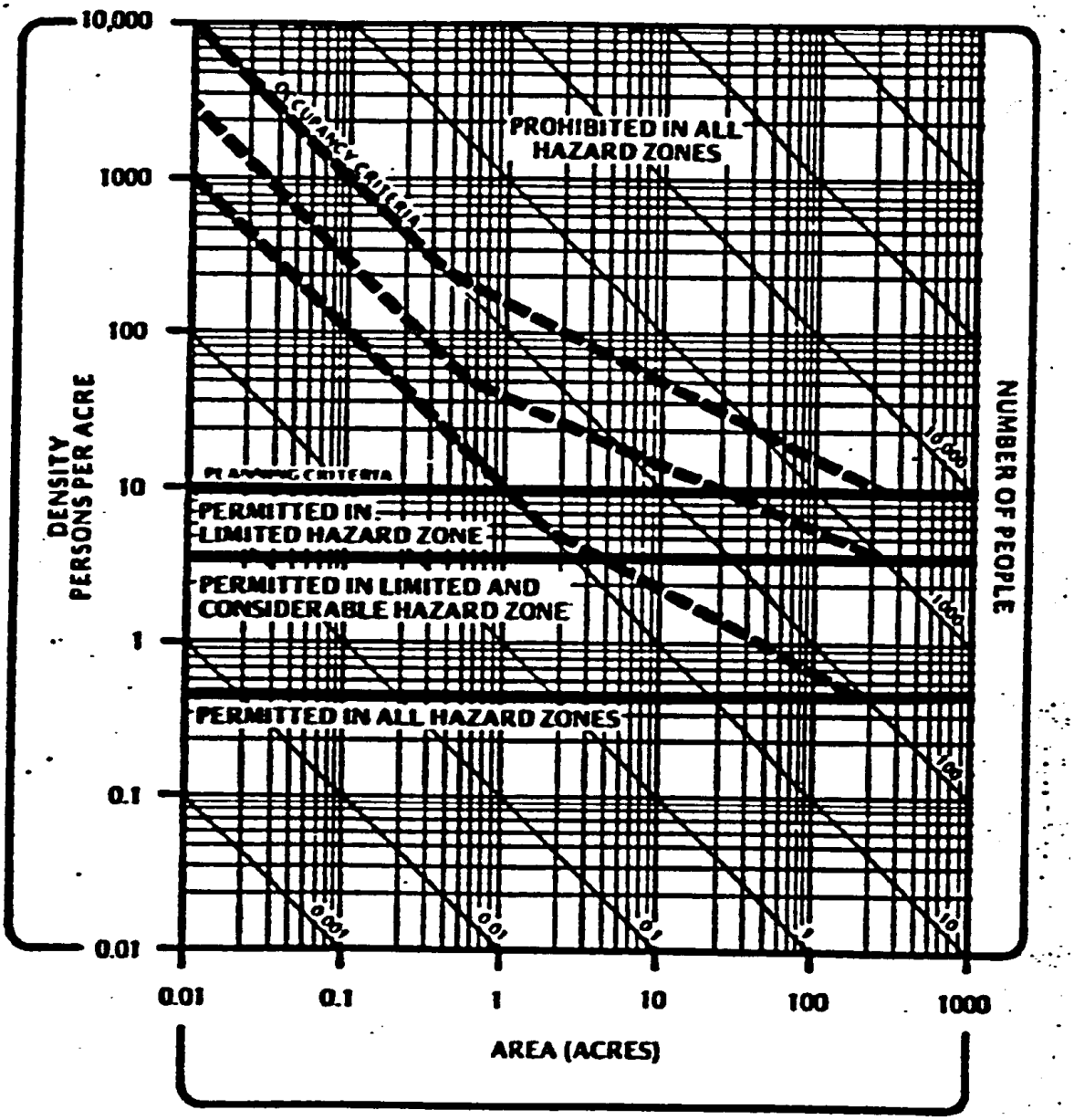
Hospitals
Stadiums and arenas
Auditoriums and concert halls
Outdoor amphitheaters and music shells
Regional shopping centers
Jails and detention centers

Additionally, land use activities which may present visual, electronic, or physical hazards to aircraft in flight should be avoided in this and all other safety zones. Visual hazards include distracting lights (particularly lights which can be confused with airfield lights), glare, and sources of smoke. Electronic hazards include any uses which interfere with aircraft radio communications. The principal physical hazards, other than the height of structures, are bird strikes/Any land use which can attract birds should be avoided. Particularly inappropriate uses are artificial attractors and sanitary landfills.

The San Bernardino County General Plan - Man Made Hazards, contains suggested density criteria (Figure III-8) with air safety zone and land use suitability matrixes, along with other recommendations and standards. A departmental review of all residential development that exceeds a density of two dwelling units per gross acre is also required. Figure III-9 (Land Use Compatibility in Aviation Safety Areas) was also sourced from the San Bernardino County General Plan.

Figure III-9

Density Criteria



SOURCE: Wilsey & Ham

Figure III-9

Land Use Compatibility in Aviation Safety Areas

	SAFETY AREA			
LAND USE	**1**	**2**	**3**	**4**
Residential single-family, duplex, multi-family, mobile homes	Clearly Unacceptable	Clearly Unacceptable	Normally Acceptable*	Normally Acceptable*
Hotels, motels, transient lodging	Clearly Unacceptable	Clearly Unacceptable	Normally Acceptable	Clearly Unacceptable
Schools, nursing homes, libraries, churches, hospitals	Clearly Unacceptable	Clearly Unacceptable	Normally Acceptable	Clearly Unacceptable
Auditoriums, concert halls, amphitheaters	Clearly Unacceptable	Clearly Unacceptable	Normally Acceptable	Clearly Unacceptable
Sports arenas, outdoor spectator sports	Clearly Unacceptable	Clearly Unacceptable*	Normally Acceptable*	Clearly Unacceptable*
Playgrounds, neighborhood parks	Clearly Unacceptable	Normally Unacceptable	Normally Acceptable	Normally Acceptable
Golf courses, riding stables, water recreation, cemeteries	Normally Unacceptable	Normally Acceptable	Clearly Acceptable	Clearly Acceptable
Office buildings, personal, professional	Clearly Unacceptable*	Clearly Unacceptable*	Normally Acceptable*	Clearly Unacceptable*
Commercial – retail, movie theaters, restaurants	Clearly Unacceptable*	Clearly Unacceptable	Normally Acceptable	Clearly Unacceptable
Commercial – wholesale, some retail, industry, manufacturing, utilities	Clearly Unacceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
Livestock, farming, animal breeding	Normally Unacceptable*	Normally Acceptable*	Clearly Acceptable*	Clearly Acceptable*
Agriculture (except livestock), mining and fishing	Normally Acceptable	Clearly Acceptable	Clearly Acceptable	Clearly Acceptable
Extensive natural recreation	Normally Acceptable	Clearly Acceptable	Clearly Acceptable	Clearly Acceptable
Maximum gross density recommended (persons per acre)	.5	25	No Limit	10**
Maximum assembly recommended (persons)	10	100	No Limit	100**

Safety Review Area 1 –
Area at either end of a runway inside and outside of the airport boundaries, and labeled clear zone as defined by FAA or Military AICUZ studies.
Safety Review Area 2 –
Area outside the airport boundaries but within the 65 Ldn noise contour.
Safety Review Area 3 –
Varies with the airport but generally: a) For airports with a 65 Ldn noise contour, area outside the 65 Ldn noise contour; b) For airports without the 65 Ldn noise contour, area within one mile of the outer boundaries of the airport ownership.
Safety Review Area 4 –
Varies with the facility: China Lake and George – one mile outside the 65 Ldn contour. Norton – within a 5-mile radius of the base. Low Altitude Corridors – entire area beneath the corridors.

Clearly Acceptable – No restrictions.
Normally Acceptable – Restricted development undertaken only after detailed analysis and satisfactory mitigation measures are initiated.
Normally Unacceptable – No new development.
Clearly Unacceptable – New construction or development should generally not be undertaken. Existing uses should be relocated.

* Some specific uses in this group may meet density criteria and be more acceptable.

** Applies for low altitude flight corridor only. Unlimited occupancy in other Safety Area 4 locations.

Airspace Restrictions

Federal Rule 14 CFR Part 77* clearly establishes criteria for height restrictions in the vicinity of airports. In addition it notices requirements for construction that could impact airspace anywhere within the County. All ALUC's base height limitations on FAR Part 77 and San Bernardino County has adopted Part 77 standards into its General Plan**, which shall be applicable to this ACLUP.

Height restrictions are necessary to protect ; navigable airspace required for safe air operations. California's airport land use planning laws further attempt to effectively mitigate the potential threat to the public's safety and welfare that could be caused by incidents in conflict with structures that impose into the states airspace.

Specifically impacting all decisions on airspace located within the vicinity of the Chino Airport, is the fact that most operations at Chino Airport are conducted on a Visual Flight Rule (VFR) basis. It is common for pilots flying VFR to navigate by using visual references such as freeways and railroad lines etc. The combination of these visual reference points and in some cases electronic navigational aids, forms a network of VFR "flyways". The safety of aircraft operations along these flyways is most effected by tall structures when weather is marginal. It is during these conditions that pilots must fly at low altitudes to remain in visual contact with the ground. The potential threat of tall structures to aviation is obviously compounded, during marginal weather, when an aircraft is operated under Instrument Flight Rules (IFR).

It is important to note that Part 77 obstruction standards, which are used by ALUC's as height limits, are used by the FAA in quite a different manner. These standards identify elevations above which air safety may be a problem subject to further review on a case by case basis. If a determination is made indicating a hazard to air navigation, the FAA's authority ceases -at this point. It is then up to the local zoning agencies to enforce the FAA recommendations and relieve the safety problem. The standards'attempt to provide a reasonable and defensible balance between the needs of the airspace users and the rights of the property owners beneath the flight patterns.

* Appendix "C" - FAR Part 77.

** San Bernardino County - General Plan Update Background report, Man Made Hazards - Airport Safety Issue

The standards applicable, in FAR Part 77, as they relate to Chino Airport and the surrounding region, are divided into two principal elements, vis:- notice requirements and obstruction standards.

1) Notice Requirements: FAR Part 77.11 through 77.19.

This section requires that each person proposing any kind of construction or alteration, as described below, notify the FAA administrator of their intentions. This section also specifies the procedure for notification and details some exceptions.

Minimum notice requirements:

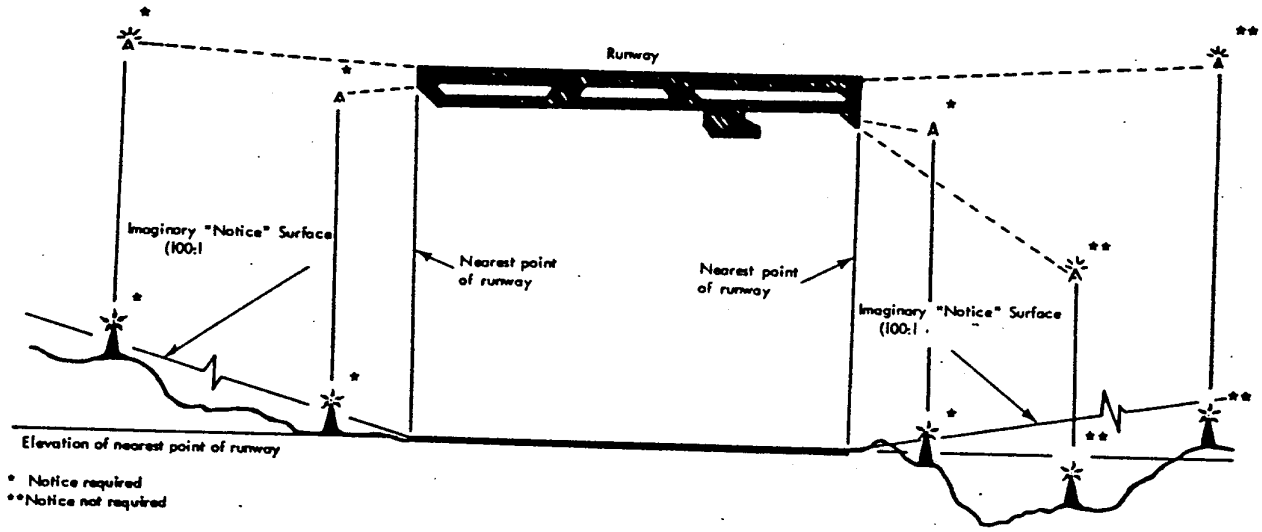
Any construction or alteration of:

- more than 200 feet in height above the ground level at its site, and/or

- a greater height than an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway, example Figure III-10

Figure III-10

Notice requirements related to airports.



2) Obstruction standards: FAR Part 77.21 through 77.25.

This section establishes standards for determining obstructions to air navigation. It applies to existing and proposed manmade objects, objects of natural growth, and terrain. The standards apply to the use of navigational airspace by aircraft and to existing air navigation facilities, such as an air navigation id, airport, Federal airway, instrument approach or departure procedure, or approved facility or use, or a change in an existing facility or use.

Obstruction planning criteria is established by the use of imaginary surfaces, formulated to conform with the size and use of any particular airport. The imaginary surfaces determined by FAR Part 77.25 and applicable to Chino Airport are as follows:

a) Primary Surface: A surface longitudinally centered along the runway, extending 200 feet beyond each end of the paved runway and having a width of 50O feet for all other existing and future runways at Chino Airport. Note that the elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

b) Horizontal Surface: A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging an arc 10,000 feet out from the center of each end of the primary surface of each runway at Chino (except runways 8L and 21) and connecting the adjacent arcs of lines tangent to these arcs.

c) Approach Surface: A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. The approach surface dimensions are shown in Table III-6.

d) Transitional Surface: These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surface. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extended a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

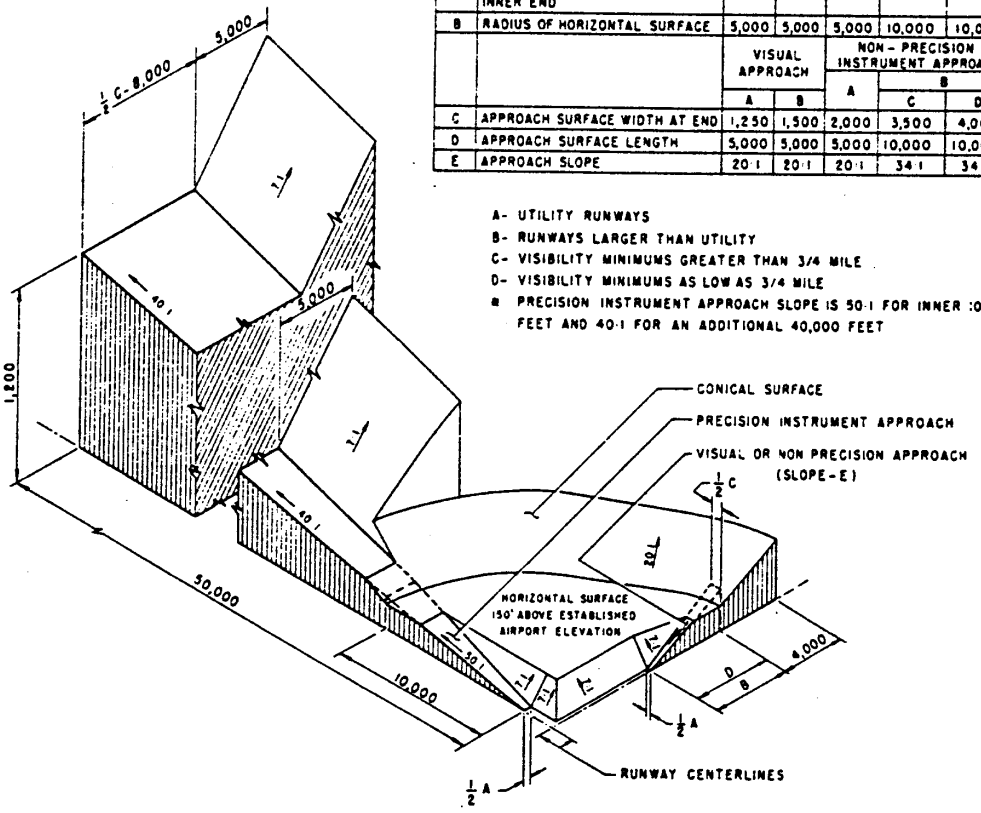
e) Conical Surface: A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

Figure III-11 provides an isometric view of the imaginary surfaces determined by Part 77.25. Figure III-12 shows the actual height restriction boundaries plotted for Chino Airport in the master plan.

Figure III-11

DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B C	B D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
		A	B	A	B C	B D	
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

A- UTILITY RUNWAYS
B- RUNWAYS LARGER THAN UTILITY
C- VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
D- VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
* PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET



ISOMETRIC VIEW OF SECTION A-A

§ 77.25 CIVIL AIRPORT IMAGINARY SURFACES

Figure III-12 – Approach and Clear Zone Plan
(Legal Size)

Figure III-12 – Approach and Clear Zone Plan
(11X17)

OTHER IMPACTS

and

ENVIRONMENTAL REVIEW

OTHER IMPACTS

For the purposes of this CLUP, specifically within the scope of the Airport Land Use Planning Law, no other impacts, apart from those identified herein, were found to impact the area surrounding the Chino Airport. No ground access problems are anticipated at the airport, provided that the future uses of the airport, remain within the context of the airport master plan.

ENVIRONMENTAL REVIEW

An Environmental Impact Report (E.I.R.) covering all aspects of the future operations of the airport, as projected within the 1986 Airport Master Plan, was Cprepared in May 1988. This E.I.R. was adopted by the *j* San Bernardino County ALUC in May 1989.

An initial environmental review of this CLUP indicates that this plan (project) will not have any impact on the environment. While the recommendations/policies included within this CLUP do require the amendment of zoning ordinances, no physical changes to the environment will result as a consequence of implementation of this plan which is either restrictive or consistent with existing zoning.

The provisions of Article 6 of the California Environmental Quality Act, Section 15070 (a) Quote "The initial study shows that there is no substantial evidence that the project may have a significant effect on the environment" end quote, have clearly been met. As such, a Negative Declaration is warranted.

APPENDICES